

Meeting Details

- Conference call-in: 1-857-216-6700
conference code: 425132
- Adobe Connect:
https://cdphe.adobeconnect.com/nutrients_3/
- Wi-Fi
 - Network: HealthyColorado
 - User ID: guest
 - Password: Ride2Work

Regulation 85 - Nutrients Management Control

June 23, 2015

Triennial Review Informational
Hearing Stakeholder Meeting



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Agenda

- Introductions and Agenda Review
- Meeting Objectives
- Triennial Review Informational Hearing Schedule
- Update on data submittals for 2014
- Progress on implementing Regulation 85 into permits
- Engineering update
- Update on Nutrient Grant Program
- Update on nutrient removal technologies
- Stormwater Monitoring Report Status

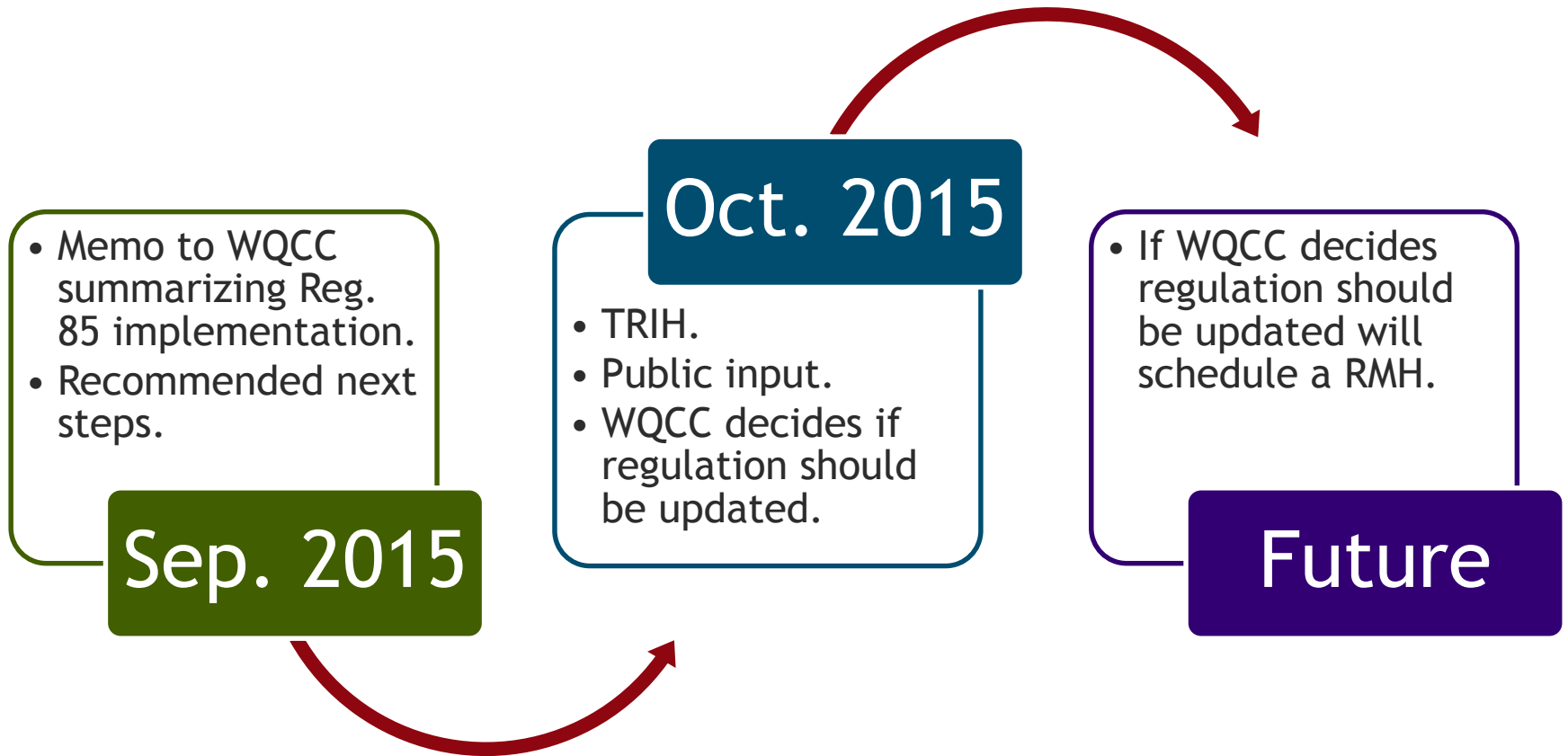


TRIENNIAL REVIEW INFORMATIONAL HEARING SCHEDULE



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Triennial Review Informational Hearing



Regulation 85 RMH would follow normal rulemaking process

- Notice (WQCC and Colorado Register)
- Party status
- Proponents prehearing statements
- Responsive prehearing statements
- Rebuttal statements
- Prehearing conference
- Rulemaking hearing

Triennial Review Informational Hearing Memo Outline

Discharger Limitations

- June 2015 - Point Sources
- August 2015 - Nonpoint Sources

Monitoring

- January 2015 - One Year of Data
- August 2015 - Two Years of Data

Data Summary & Analysis

- January 2015 - Initial Report Out
- August 2015 - Updated information

Recommendations

- Implementation of regulation is going OK!
- August 2015 - Summary of Recommendations

Regulation 31

- January 2015 - Initial Report Out

Key Dates

- Stakeholder Meeting #4: August 17, 2015, 1:30 - 4:30 pm, Sabin-Cleere, Building A
- End of July 2015 - Triennial Review Informational Hearing Notice posted to Water Quality Control Commission website.
- Notice will also be included in the September Water Quality Bulletin.
- September 9, 2015 Water Quality Control Division memo to Water Quality Control Commission regarding Regulation 85 Triennial Review Informational Hearing will be posted on Water Quality Control Commission website.
- September 30, 2015 Public comments for Regulation 85 Triennial Review Informational hearing will be due to the Water Quality Control Commission Office.
- October 13, 2015 Triennial Review Informational Hearing

A man wearing a hat, a white t-shirt with a red star logo, and khaki waders is standing in a shallow stream. He is holding a clipboard and a long metal pole with a sampling device at the bottom. The background shows a rocky stream bed, green grass, and trees.

UPDATE ON DATA SUBMITTAL FOR 2014

Photo by Blake Beyea <http://www.escaphotography.com>



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Permits

PROGRESS ON IMPLEMENTING REGULATION 85 INTO PERMITS





DWWTWs

Domestic wastewater treatment works

Regulatory Requirements

EXISTING FACILITIES

PARAMETER	PARAMETER LIMITATIONS	
	Annual Median	95th Percentile
(a) Total Phosphorus	1.0 mg/L	2.5 mg/L
(b) Total Inorganic Nitrogen as N3	15 mg/L	20 mg/L

NEW FACILITIES

PARAMETER	PARAMETER LIMITATIONS	
	Annual Median	95th Percentile
(a) Total Phosphorus	0.7 mg/L	1.75 mg/L
(b) Total Inorganic Nitrogen as N3	7 mg/L	14 mg/L

Regulatory Requirements

- Exclusions
 - ≤ 1 MGD
 - Disadvantaged community
- Delayed Implementation (May 31, 2022)
 - Facilities subject to a nutrient control regulation
 - Low priority watershed
 - ≤ 2 MGD
- Exceptions
 - Dilution adequate to meet nutrient standards

Facilities

Total Facilities Subject to Numeric Limits	45
Existing Facilities Subject to Numeric Limits	44
New Facilities Subject to Numeric Limits	1
Implementation Complete	15
Numeric Limits Applied in Permits	11
Excluded Based on Dilution	4
Implementation Pending	30

SIC 20 and other industrial discharges



Regulatory Requirements

EXISTING FACILITIES

PARAMETER	PARAMETER LIMITATIONS	
	Annual Median	95th Percentile
(a) Total Phosphorus	1.0 mg/L	2.5 mg/L
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Regulatory Requirements

- Applicability
 - Standard Industrial Classification Code 20:
Food and Kindred Products
 - Other discharges expected to discharge, without treatment, nutrients at levels above those in the regulation
- Delayed Implementation (May 31, 2022)
 - Low priority watershed
- Exceptions
 - Dilution adequate to meet nutrient standards

Permit Implementation Status

Total Facilities Subject to Numeric Limits	7
SIC 20 Facilities Subject to Numeric Limits	6
Other Facilities Subject to Numeric Limits	1
Implementation Complete	1
Numeric Limits Applied in Permits	1
Excluded Based on Dilution	0
Implementation Pending	6

MS4s

Municipal separate storm sewer systems



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Regulatory Requirements

- MS4s Must implement public education program to reduce water quality impacts associated with nutrients (85.5(4)(a)).
- MS4s must implement program to prevent or reduce nutrients in runoff from the MS4's own municipal operations (85.5(4)(b)).

How are Reg 85 Requirements Incorporated Into Permits?

- Incorporated upon permit renewal.
- Reg 85 requirements are taken from Reg 85 verbatim and/or paraphrased to work within the context of the permit.
- Details describing minimum standards are added.

Permit Implementation Status

Type of MS4	# of Permittees	Current Status
Phase II (standard) General Permit	47	draft permit currently in public notice period
Phase II Cherry Basin General permit	9	draft permit currently in public notice period
Phase II (non standard) General Permit	59	To be completed after other Phase II generals
Individual Permits	5	CDOT draft permit being finalized; others to be completed after Phase II and CDOT
TOTAL	120	



STORMWATER MONITORING REPORT STATUS



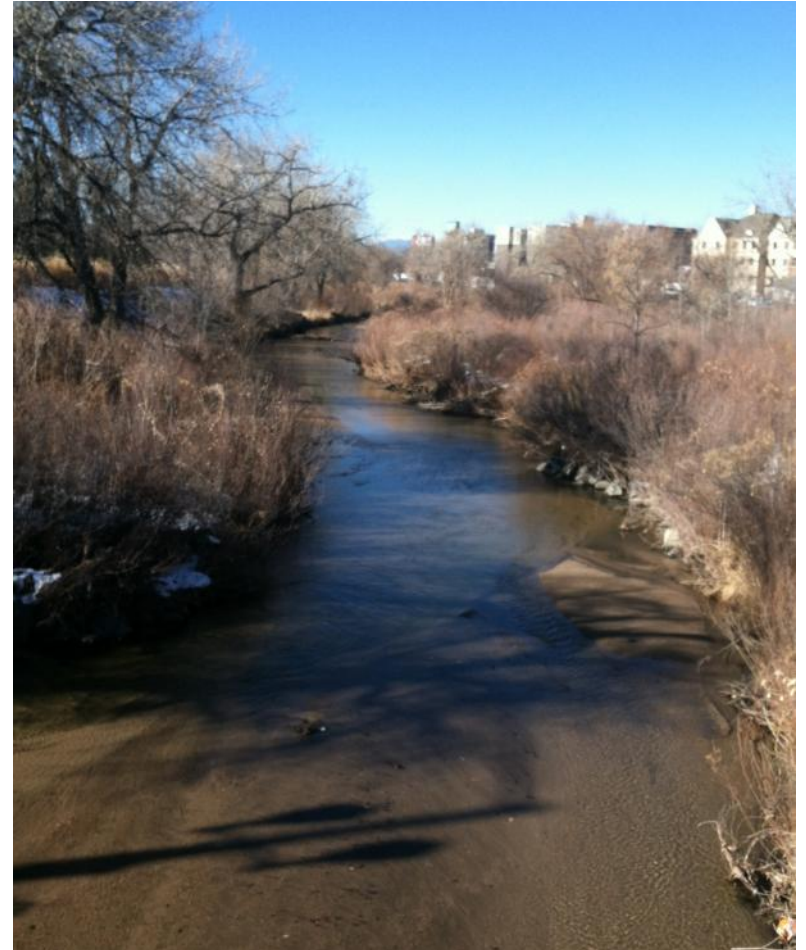
UPDATE ON NUTRIENT GRANT PROGRAM



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Nutrients Grant HB13-1191

- Provided \$15 million in funding in SFY13
- Provided an addition \$2 million in SFY14
- Funds compliance efforts of phase one (>2MGD) treatment facilities
- Demonstrates state commitment to communities



Legislation Sponsored by:
Reps Randy Fischer and Ed Vigil
Senators Gail Schwartz and Angela Giron



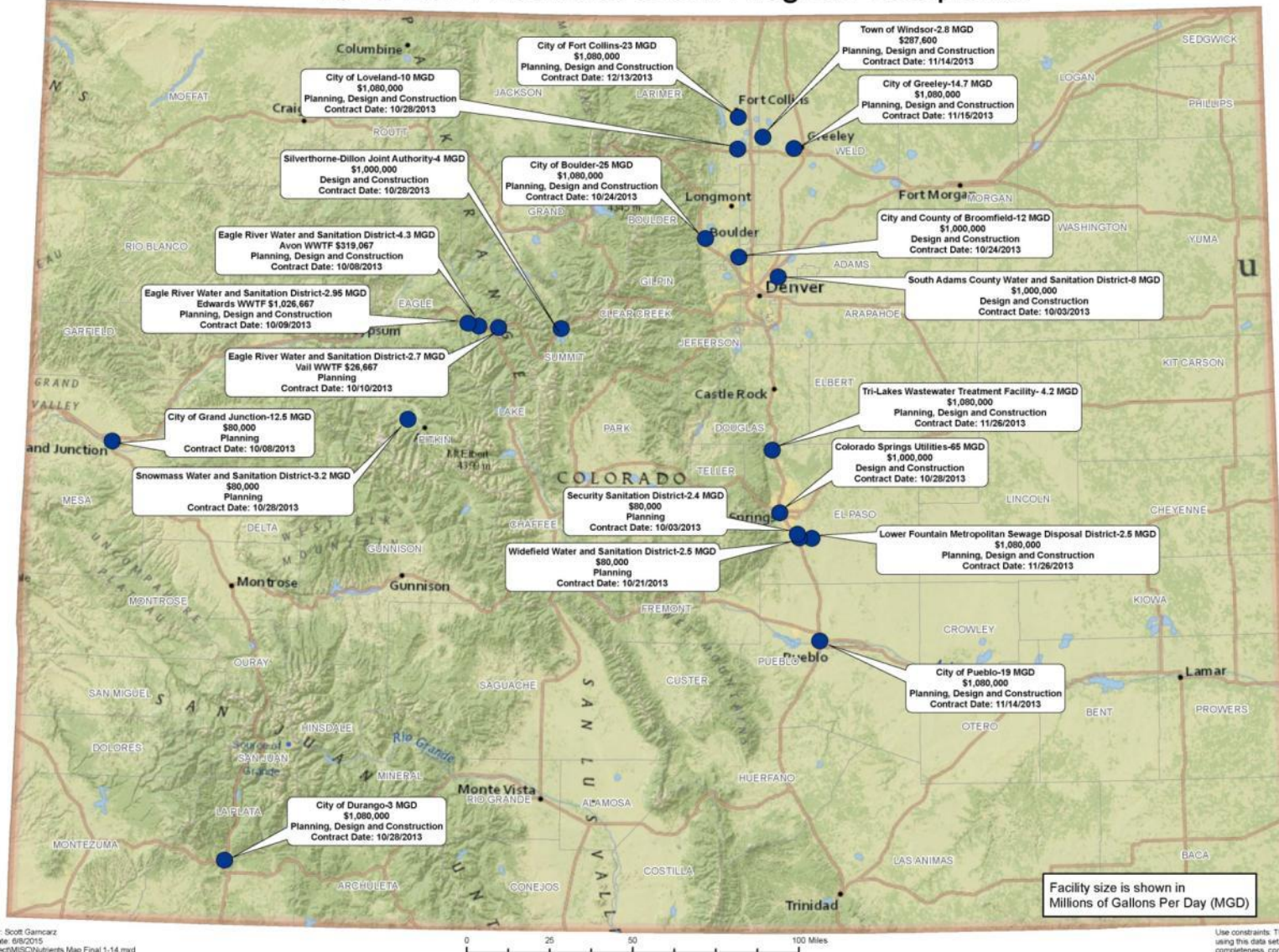
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Nutrients Grant HB 13-1191

- Support Regulation #85 compliance
- Reduce phosphorus and nitrogen
- Improve Colorado water quality



2013-2014 Nutrients Grant Program Recipients



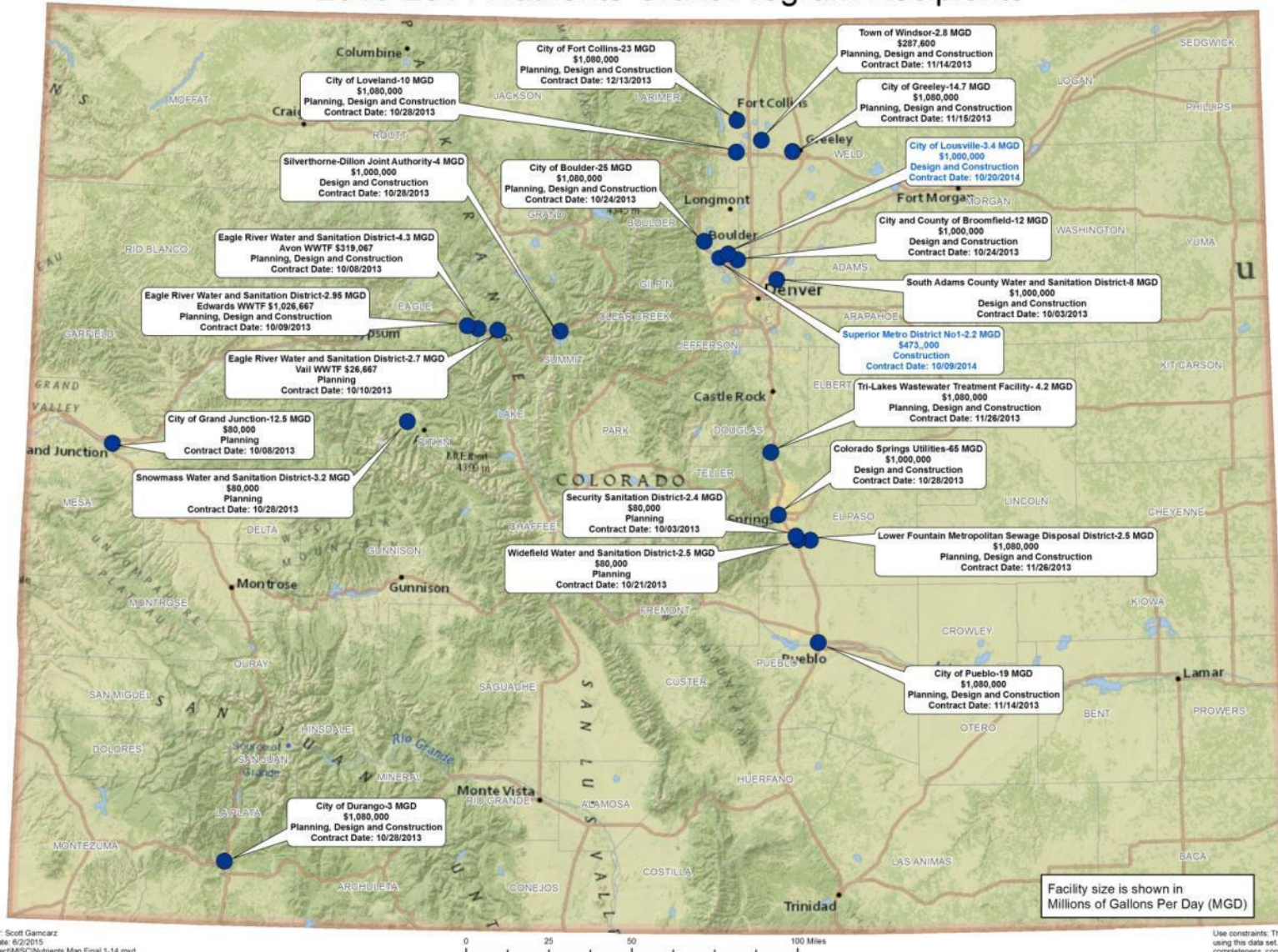
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Date: 6/8/2015
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Use constraints: There are no restrictions and legal prerequisites for using this data set. The state of Colorado assumes no liability to the completeness, correctness, or fitness for use of this data set.



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2013-2014 Nutrients Grant Program Recipients



Author: Scott Gamcarz

Date: 6/22/2015

Document Path: L:\GLUP\Project\MSC\Nutrients Map Final 1-14.mxd



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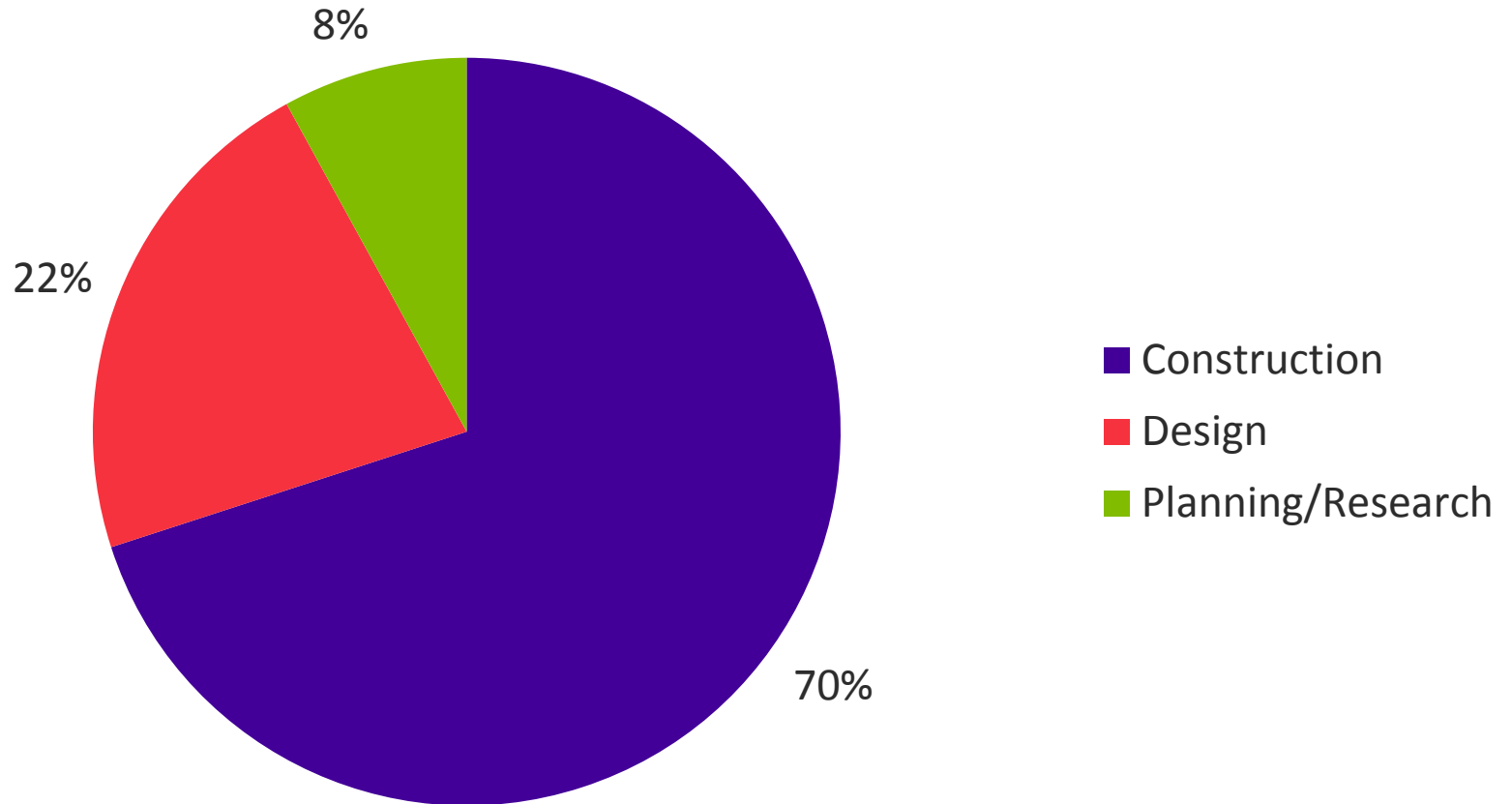


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Select Project Types

- Pilot Study
- Watershed Management Plan
- Nutrient Engineering Study
- Treatment Improvement Design
- Treatment Improvement Construction

Funded Activities



Current Accomplishments

- 20 entities funded
- 3 projects completed
- \$16.7 million awarded
- \$7.1 million expended



City of Greeley



Fort Collins Utilities



South Adams County WSD

City of Boulder

- Brewery waste, Micro C2000, and acetic acid Pilot Studies
- Treatment process optimization
- Nutrient Engineering Report
- Process Design Report, plans, specifications
- Construction: Nitrogen removal upgrades

Eagle River WSD

- Stream modeling and analysis
- Watershed analysis
- Nutrient Management Plan
- Avon plant modification design and construction
- Edwards facility design and construction:
SNDR (Storage Nitrification
Denitrification Reactor)

City of Greeley

- Nutrient Engineering Report
- Process Design Report
- Centrate storage and treatment design/
construction

Fort Collins Utilities

- Pilot testing
- Nutrient Engineering Report
- Retrofit south train for Biological Nutrient Removal process

South Adams County WSD

- Design/Construction: Biological Nutrient Removal upgrades





ENGINEERING UPDATE



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General Statistics

- Engineering Section Focus: DWWTW
- Permits Reflect Industrial Activity
- 30 DWWTW Actively Working with Engineering Section
 - 20 Grant Funded
 - 10 Non Grant Funded

New DWWTW versus Existing

- Less than five New DWWTW currently
- Examples
 - Permitted Groundwater to Surface Water
 - Existing, permitted DWWTW changing discharge location to a different stream segment
- Elevate Each Decision to Executive Management with Recommendation

Statistics for Active DWWTW

- Projects Based on Risk and Cost
 - Risk: Regulation 31 standards
 - Still Investigating Capital Expenditure Trends (\$/gallon)
 - › Variable Gains (TIN/TP)
 - › Incorporating Other Repairs
 - › Rethinking Processes
 - › Phasing of Work
 - Incomplete Capital Cost Data Set
 - General Trend: Impact to user rates based on service area population (density) and project type

Categories of Response

1. Pilot/Study
 2. New Facility
 3. Scrape and Rebuild
 4. Upgrade and Repurpose (Phased or Complete)
- Optimization - part of all through efficient motors, improved operational SCADA, better use of existing process tanks

Response : Pilot / Study

- Boulder 75th Street:
 - Carbon (brewery waste, methanol, micro-c, ascetic acid)
 - Polymer for TSS
 - Gravity Thickener (Fermentation)
 - Recycle modifications
- Fort Collins:
 - Carbon Source (whey)
 - Chemical Phosphorus Precipitation
 - Cell Lysis (VFA production, sludge stability, digester gas production)
- Pueblo James R. Dilorio:
 - Alternate Carbon Source
 - Phosphorus Optimization of Tertiary Filters

Response : Pilot / Study

- Lower Fountain Harold D. Thompson: Chemical Phosphorus Precipitation
- Tri-Lakes: Chemical Phosphorus Precipitation
- Metro Wastewater Reclamation District:
 - Gravity Thickener (Fermentation)
 - CaRRB (anaerobic repurposing)
 - Deammonification
 - Ostara (phosphorus recovery and struvite control)
- Eagle River: Chemically Enhanced Primary Clarification
- Greeley: Dewatering
- South Adams County Water and Wastewater Authority: Dewatering
- Colorado Springs JD Philips - Carbon (Whey)
- Colorado Springs Utilities - A2O operations

Response : New Facility

- 0.7 mg/L TP and 7 mg/L TIN (1 Facility)
 - Berthoud Regional WWTF (1 MGD)
 - › Population : 16,574
 - › Capital Cost : \$2.5 million
- Dilution enables DWWTW to meet Reg 31 Nutrient Standards (5 Facilities)
 - Eagle River WSD - Wolcott (0.15 MGD)
 - › Population : 1,075
 - › Capital Cost : \$5.0 million

Response : Scrape and Rebuild

- 1 mg/L TP and 15 mg/L TIN (5 Facilities)
 - Northern Treatment Plant (28 MGD)
 - › Population : 287,000
 - › Capital Cost : \$405 million
 - Boxelder Sanitation District (2.34)
 - › Population : 11,000
 - › Capital Cost : \$11.15 million
 - Evans (3.5 MGD)
 - › Population : 19,944
 - › Capital Cost : \$25.8 million
 - Durango (3.0 MGD)
 - Fort Collins - Mulberry (5 MGD)

Response : Upgrade/Repurpose

- 1 mg/L TP and 15 mg/L TIN (20 Facilities)
 - Examples (Partial or Complete):

- | | |
|---|---|
| ›Eagle River WSD Edwards (2.95 MGD) | ›South Adams County Williams Monaco (8 MGD) |
| ›Eagle River WSD Avon (4.3 MGD) | ›Tri-Lakes (4.2 MGD) |
| ›Broomfield (12 MGD) | ›Clifton Sanitation District (2.5 MGD) |
| ›Fort Collins - Drake (23 MGD) | ›Longmont (13 MGD) |
| ›Boulder 75 th Street (25 MGD) | ›Stonegate Village Metropolitan District |
| ›Colorado Springs Las Vegas (65 MGD) | ›Centennial WSD Marcy Gulch (8.48 MGD) |
| ›Greeley (14.7 MGD) | ›Superior (2.2 MGD) |
| ›Louisville (2.53 MGD) | ›Grand Junction |
| ›Loveland (10 MGD) | ›Windsor (2.8 MGD) |
| ›Pueblo James R. Dilorio (19 MGD) | |
| ›Silverthorne Dillon Blue River (4 MGD) | |

- Capital Cost Range : \$1.3 - \$11.6 million

Ability for DWWTW to Meet Technology Based Limits

- Only incorporated into Permits if Treatment Capability Exists
- Permit Compliance Schedule is Alternative
- Majority of Capital Projects are not complete rebuild
- Unexpected: Approaches to TP
- Long way off from results - not constructed, not permitted, not sampled



UPDATE ON NUTRIENT REMOVAL TECHNOLOGIES



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Alternative Technology Reviews

- WPC-DR-1 already includes most biological technologies
- Alternative Technologies (1.11)
 - Not currently part of WPC-DR-1
 - In state pilot/full scale demonstration not required
 - Division reviews data and writes design criteria
 - Division accepts, not approves technology
- Regulation 85 has increased Alternative Technology reviews for all mechanical WWTFs and lagoons

Alternative Technology Reviews

- Status since last Reg 85 stakeholder meetings
 - Biomag - ballasted clarification **in review**
 - Blue PRO - phosphorus removal
 - Blue NITE - moving bed denitrification
 - Deammonification
 - › World Water Works - Demon
 - › Kruger - ANITA Mox
 - › Infilco Degramont - Clear Green
 - › Paques - **in review**
 - EDI - IDEAL lagoon SBR **in review**
 - Lemna - tertiary fixed film nitrification
 - Biodome - **in review**

NEXT STEPS



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Next Steps

- Nonpoint Source Progress Report
- Preliminary Data Analysis Efforts
 - Point sources
 - Refinement of nutrient sources
 - Developing a mass-balance tool
- Recommendations

WRAP-UP



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Key Dates

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